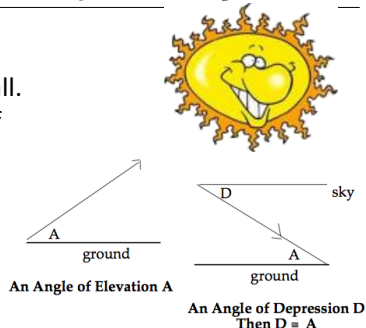


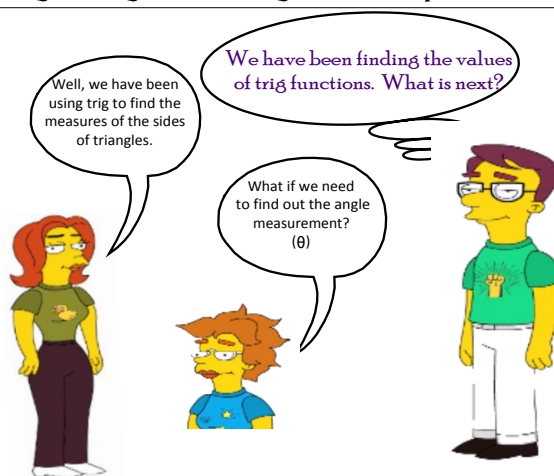
**Obj: Students will be able to find the measure of an angle using inverse trig relationships.**

**Ticket in:**

Santiago is 6'1" tall.  
Find the length of his shadow if the angle of elevation the sun is  $28^\circ$ .  
(in feet)



**Obj: Students will be able to find the measure of an angle using inverse trig relationships.**



**Obj: Students will be able to find the measure of an angle using inverse trig relationships.**



$$\frac{\sqrt{x}}{\sqrt{\quad}} = \frac{4}{\sqrt{\quad}}$$

$$x = \frac{4}{\sqrt{\quad}}$$

To prove a point, Mrs. Bashford solved the following equation for her students.

What point is she trying to make?

**Obj: Students will be able to find the measure of an angle using inverse trig relationships.**



$$\frac{\log_2 X}{\log_2 \quad} = \frac{3}{\log_2 \quad}$$

$$X = \frac{3}{\log_2 \quad}$$

Why or why not?

**Obj: Students will be able to find the measure of an angle using inverse trig relationships.**



In order to "solve" an equation, you must perform the INVERSE operation to "undo" the equation.

Mrs. Evans has a big head.

**Obj: Students will be able to find the measure of an angle using inverse trig relationships.**



Addition will "undo" \_\_\_\_\_

Division will "undo" \_\_\_\_\_

Squaring will "undo" \_\_\_\_\_

To "undo" an exponential equation, you must \_\_\_\_\_ both sides.

To "undo" a logarithmic equation, you must \_\_\_\_\_ both sides.

**Obj: Students will be able to find the measure of an angle using inverse trig relationships.**



$$\sqrt{x} = 4$$

Think inverses!!!!

$$(\sqrt{x})^2 = (4)^2$$

$$x = 16$$

Is it possible to "undo" Mr. Biller's CrAZY gene?



**Obj: Students will be able to find the measure of an angle using inverse trig relationships.**



Don't you know anything, Mr. Biller?

And, your floating head is making me nervous.



Ms. Shaw when she straightens her curly locks

**Obj: Students will be able to find the measure of an angle using inverse trig relationships.**

**Solving trigonometric functions is like solving equations!**

$$\text{Solve: } \frac{3}{4}x - 10 = 20$$



**Obj: Students will be able to find the measure of an angle using inverse trig relationships.**

**Think about it!**

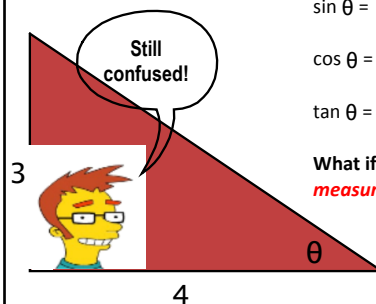
As of right now, you can find the values of the 6 trig functions...

$$\sin \theta = \quad \csc \theta =$$

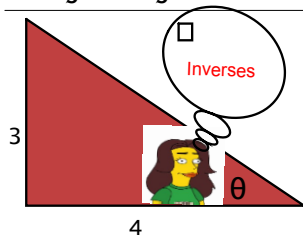
$$\cos \theta = \quad \sec \theta =$$

$$\tan \theta = \quad \cot \theta =$$

**What if you needed to know the *measure of the angle*?**



**Obj: Students will be able to find the measure of an angle using inverse trig relationships.**



Hint -->  
Look on your calculator

Notation:

Inverse  $\sin \theta \rightarrow$   
 $\sin^{-1}(\sin \theta)$  OR  
 $\arcsin(\sin \theta)$

**Obj: Students will be able to find the measure of an angle using inverse trig relationships.**



If  $\sin \theta = 3/5$  and we want to know what  $\theta$  equals...

Perform the inverse operation:  
 $\sin^{-1}(\sin \theta) = \sin^{-1}(3/5)$

Try it on your calculator!



**Obj: Students will be able to find the measure of an angle using inverse trig relationships.**

Why did I get it wrong?

Are you in <sup>°</sup> RADIANS?



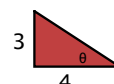
**Obj: Students will be able to find the measure of an angle using inverse trig relationships.**

Would I always have to use sine?

Why don't you TRY something... THINK for once, Mr. Biller.



$\tan \theta = \frac{\quad}{\quad}$   
Find  $\theta$ !



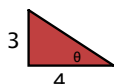
**Obj: Students will be able to find the measure of an angle using inverse trig relationships.**

Why does everyone always pick on me?

Because you look like Millhouse.



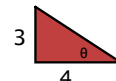
$\cos \theta = \frac{\quad}{\quad}$   
Find  $\theta$ !



**Obj: Students will be able to find the measure of an angle using inverse trig relationships.**

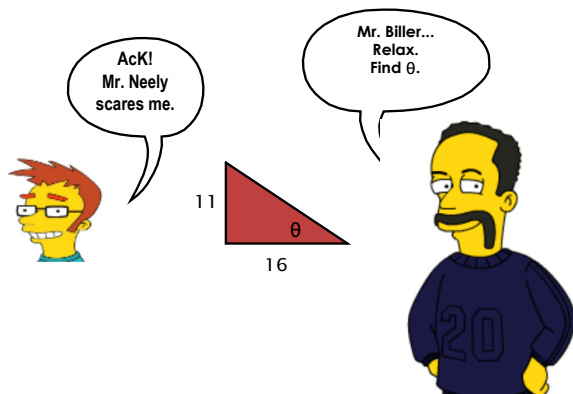
Stop calling me wEiRd!

Isn't that weird?



Why are all of the answers the same?

**Obj: Students will be able to find the measure of an angle using inverse trig relationships.**



**Obj: Students will be able to find the measure of an angle using inverse trig relationships.**

Be careful of some misconceptions!

- $x^{-1} = 1/x$
- $\sin^{-1}\theta \neq 1/\sin^{-1}\theta$



Why?

**Mr. Robble is buff.**

**Obj: Students will be able to find the measure of an angle using inverse trig relationships.**

Be careful of some misconceptions!

Your calculator MODE should be in RADIANS, unless the problem is specifically asking for degrees!



**Obj: Students will be able to find the measure of an angle using inverse trig relationships.**

Be careful of some misconceptions!

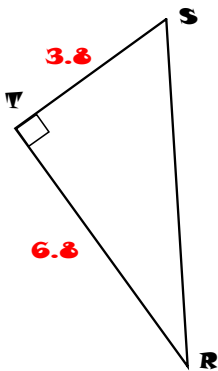
$$\sin \theta = 4/5 \rightarrow$$

**You cannot find  $\theta$  by dividing by sine!**

Have you been listening Mr. Biller?

You must undo  $\sin \theta$  by taking the inverse of sine!

**Obj:** Students will be able to find the measure of an angle using inverse trig relationships.

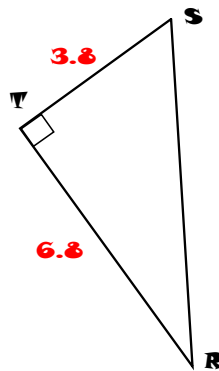


To SOLVE a triangle, you will need to find the measures of all the unknown sides and angles.

- 1 Find the measure of angle R (in degrees)



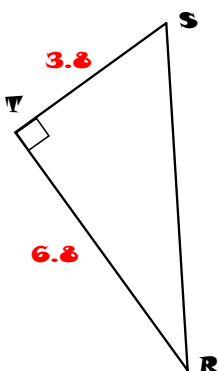
**Obj:** Students will be able to find the measure of an angle using inverse trig relationships.



To SOLVE a triangle, you will need to find the measures of all the unknown sides and angles.

- 2 Find the measure of angle S (in degrees)

**Obj:** Students will be able to find the measure of an angle using inverse trig relationships.



To SOLVE a triangle, you will need to find the measures of all the unknown sides and angles.

- 3 Find the length of RS.

**Obj:** Students will be able to find the measure of an angle using inverse trig relationships.

Use your graphing calculator to graph  
 $y = \sin x$  and  $y = \sin^{-1} x$

What do you notice?

**Obj: Students will be able to find the measure of an angle using inverse trig relationships.**

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Homework:  
Page 833 - 834  
(32 - 43 all, 46 - 49 all)